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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,885

09/30/2005

Yasuo Omi

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6799

23432 7590 07/25/2008
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EXAMINER

GUPTA, VANI

ART UNIT

PAPER NUMBER

3768

MAIL DATE

DELIVERY MODE

07/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,885	Applicant(s) OMI ET AL.	
	Examiner VANI GUPTA	Art Unit 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/30/2005; 3/26/2008</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. *Claims 1 – 20 are rejected under 35 USC 102(e) as being anticipated by Baba et al. (US 20060173292 A1).*

Regarding **Claims 1 - 20**, Baba discloses that an image diagnostic apparatus such as an ultrasound diagnostic apparatus, a magnetic resonance imaging (MRI) apparatus, and/or an X-ray CT apparatus is capable of displaying a tomographic image of a region of an object to be examined on a monitor for conducting a diagnosis. Specifically, tomographic images can allow a diagnostician to diagnose the function of a variety of organs such as a circulatory organ by observing movement of the organ structure or tissue (paragraph [0002]).

Baba explains that this is generally accomplished by producing pluralities of frames of tomographic functional images of the organ under examination, and displaying this image on a display unit (paragraph [0008]). He presents an invention (fig. 1) comprising an image storing unit (#1), display unit (#2), console (#3), an automatic tracking unit (#4), and a signal line (#6), which can allow one to accurately diagnose the condition of an organ during a quantitative evaluation of its functions. This can be done by extracting an outline of a dynamic atrium wall or ventricle wall, and superposing (or overlaying) the outline of the structure on the displayed

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image (i.e., quantitatively measuring the dynamic state of the heart tissue by displaying its movement); and calculating the volume of the ventricle from the displayed functional images (paragraph [0003]).

Quantitative values such as velocity and speed of movement of the organ wall(s) can help determine the blood volume of the ventricle. This is accomplished by tracking the coordinates of the designated portion of the organ, and calculating the movement based on the coordinate information, while using the automatic tracking system. Additionally, this information can be represented by a line graph that may be displayed with the corresponding image on the monitor (paragraph [0034], last 9 lines).

Baba also explains that the designated areas of interest of the image(s) are extracted or located by setting a searchable, rectangular, area by adding pixels to the upper, lower, right, and left sides of an image (Fig. 4(b)). Any portion of an organ may be monitored. For example, it is possible to obtain a measurement of pulse wave of a large vessel wall such as a carotid artery. By setting a plurality of designated portions in a longitudinal direction of blood vessel wall and quantitatively measuring and comparing the moving distance of those designated portions, a degree of hardening of the arteries can be understood (paragraph [0070]).

Baba also gives examples of how the moving direction of each of designated points of an organ structure can be displayed in different colors. Additionally, a brightness modulation may be provided in accordance with the moving speed. Therefore, it is possible to grasp the movement of the cardiac muscle from a color image display (paragraph [0045]).

Baba's invention also provides a control method of region-of-interest (ROI) tracking. The console allows one inputting a command to form an ROI, while the automatic tracking unit

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ensures that the ROI follow the tissue movement in the moving image displayed on the display unit. The automatic tracking unit includes display control means (Fig. 15, #14) for superposing the ROI calculated based on a coordinate of its reference point after movement on an another frame image in the display. A ROI-measured-information-calculating unit (fig. 15, #15) has a function that allows one to quantitatively calculating a brightness of pixel, a brightness average, a brightness shift, and so on based on the measured information such as a pixel value inside the ROI. By measuring the brightness average inside the ROI before and after movement, it is possible to accurately and quantitatively measure the blood flow in the moving cardiac muscle; and therefore, possibly, accurately and properly examine and diagnose the development and degree of a symptom or ailment (paragraph [0057 – 0069]).

Lastly, Baba discusses the possibility of applying an SAD method wherein an absolute value of a difference between corresponding pixel values of each pixel is calculated, and the sum of the absolute values is used as a correlation value; and an SSD method wherein an absolute value of a difference between corresponding pixel values of each pixel is calculated, and the sum of square values of the absolute values is used as a correlation value (paragraph [0073]).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VANI GUPTA whose telephone number is 571-270-5042. The examiner can normally be reached on Monday - Thursday; 7:30 - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian L Casler/
Supervisory Patent Examiner, Art Unit
3737

/Vani Gupta/
Examiner, Art Unit 3768